What is claimed is:

1. A method of providing a synchronization signal to a terminal which is adapted for use in a communications network, the method comprising:

transmitting to said terminal a communication signal comprising a plurality of frames, each of said frames comprising at least one time slot; and

including a respective portion of said synchronization signal in at least one said time slot of a plurality of said frames, said synchronization signal including data which is adapted for use by said terminal to control transmission timing of said terminal.

2. The method of claim 1 wherein said including step includes in each of said frames said respective portion of said synchronization signal in at least one time slot.

3. The method of claim 1, wherein said including step includes said portion of said synchronization signal in each said frame, such that said synchronization signal comprises a unique word signal that is substantially the same in each frame.

4. The method of claim 1, wherein:

said transmitting step further includes aranging respective groups of said frame into respective superframe, and for each said superframe,

said including step includes a portion of said synchronization signal in each said frame, such that each said portion comprises a respective phase signal that is unique for each respective frame within a particular superframe.

5. The method of claim 4, wherein said transmitting step further includes transmitting the start of each of said superframe such that it substantially coincides with the start of one of said frames.

6. The method of claim 5 wherein said transmitting step further includes transmitting the start of each of said frames such that it substantially coincides with the start of one of said time slots.

7. The method of claim 4, wherein said including step includes said phase signals in said frames of said superframes in the same order for each said superframe.

8. A method of determining the power level of a communications signal comprising a plurality of time slots, the method comprising:

measuring the power of the communications signal in substantially continuous discrete time periods, each time period being less than the duration of one of said time slots, setting the gain of an automatic gain control circuit based on the maximum power in any time period; and

controlling said automatic gain control circuit to apply said gain to said communications signal.

9. The method of claim 8, wherein said measuring step uses said time periods that are each no more than half of the duration of one of said time slots.

10. A method of acquiring a signal being transmitted within a range of possible frequencies at a terminal adapted for use in a satellite communication system, the method comprising:

receiving said signal at said terminal, said signal comprising a plurality of frames, a portion each frame comprising a unique word pattern;

testing at least one of a plurality of possible frequencies within said range for the duration of at least one frame for the presence of the unique word pattern; and

repeating said testing step at additional respective frequencies within said range until said unique word pattern is detected.

11. The method of claim 10 wherein said testing step further includes:

determining a correlation value for each tested frequency; and

said repeating step further includes detecting said unique word pattern when the correlation value is above a threshold value.

12. The method of claim 10 wherein said testing step further includes:

determining a correlation value for each of said plurality of possible frequencies, and identifying a maximum correlation value from the plurality of correlation values.

13. The method of claim 12 further comprising determining a transmission frequency based on the frequency associated with said maximum correlation value.

14. A method of providing a synchronization signal to a terminal adapted for use in a satellite communication system, the method comprising:

generating said synchronization signal as a plurality of unique phase signals; and

transmitting a communication signal to said terminal, said communication signal comprising a plurality of frames, a portion of each frame comprising a respective one of said plurality of unique phase signals.

15. The method of claim 14 wherein said communication signal comprises a plurality of superframes, each superframe comprising a plurality of said frames, such that the order of unique phase signals in each frame repeats in every superframe.

16. The method of claim 15 wherein the number of frames per superframe is equal to the number of unique phase signals.

17. The method of claim 15, wherein said transmitting step transmits said communication signal such that the beginning of each superframe substantially coincides with the beginning of one of said frames.

18. A method of determining the phase of a satellite communications signal comprising a plurality of frames, and having a series of unique phase signal time division multiplexed into at least one time slot of each respective frame, a plurality of frames forming a superframe such that the order of said unique phase signals repeats in each superframe, the method comprising:

correlating the phase signal portion of each frame with a reference phase signal;

generating a correlation value for each frame; and

determining the start of the superframe based on the frame generating the highest correlation value.

19. The method of claim 18, wherein said unique phase signals comprise pseudonoise sequences.

20. The method of claim 18, wherein said reference phase signal comprises a pseudonoise sequence substantially identical to one of the series of unique phase signals.

21. The method of claim 18, wherein said reference phase signal is substantially identical to the first unique phase signal in each superframe.

22. A method of acquiring a communication signal, the communication signal comprising a plurality of frames, each frame comprising a plurality of time slots, at least one time slot in each frame having synchronization data with a unique word signal contained therein, the method comprising:

(a) setting the gain of an automatic gain control circuit based on the maximum power measured in continuous time intervals being less than the duration of one time slot of each frame;

(b) correlating at least one frame with a locally generated unique word signal at at least one of a plurality of possible frequencies;

(c) storing a correlation value for each of said possible frequencies;

(d) setting a numerically controlled oscillator (NCO) frequency based on a desired correlation value of said possible frequencies;

(e) repeating steps (a)-(d) while the correlation value is below a frequency acquisition threshold, and when said correlation value is at least equal to said frequency acquisition threshold, performing the steps of:

(f) determining an arrival time of the unique word signal in a first frame;

(g) estimating an estimated arrival time of the unique word signal in a second frame based on the arrival time of the unique word signal in said first frame;

(h) determining the actual arrival time of the unique word signal in said second frame;

(e) calculating a difference between the estimated arrival time and the actual arrival time;

(j) adjusting a voltage controlled oscillator (VCO) frequency based on said difference;

(k) repeating steps (f)-(j) while said difference is not below a timing acquisition threshold to determine acquisition of said communication signal.

23. The method of claim 22, wherein said step of setting the gain measures time intervals that are no more than half of the duration of one time slot.

24. The method of claim 22 wherein said correlating step is performed at each of said plurality of possible frequencies.

25. The method of claim 22 wherein said step of setting the NCO frequency sets the NCO frequency based on the maximum correlation value of said possible frequencies.

26. A system for providing a synchronization signal to a terminal which is adapted for use in a communications network, the system comprising:

a transmitter for transmitting to said terminal a signal including a plurality of frames, each of said frames including at least one time slot;

wherein said transmitter includes a respective portion of said synchronization signal in at least one said time slot of a plurality of said frames, said synchronization signal including data which is adapted for use by said terminal to control the transmission timing of said terminal.

27. The system of claim 26 wherein each of said frames includes a respective portion of said synchronization signal in at least one time slot.

28. The system of claim 26, wherein said synchronization signal includes frequency data which is further adapted for use by said terminal to control transmission frequency of said terminal; and said system controls said transmission frequency based on said frequency data.

29. The system of claim 26, wherein the portion of said synchronization signal in each said frame includes a unique word signal that is substantially the same in each frame.

30. The system of claim 26, wherein the signal includes a plurality of superframes, each of said superframes including a plurality of said frames, and wherein said portion of said synchronization signal includes a phase signal that is unique for each frame within a particular superframe.

31. The system of claim 30, wherein the start of each of said superframes substantially coincides with the start of one of said frames.

32. The system of claim 31, wherein the start of each of said frames substantially coincides with the start of one of said time slots.

33. The system of claim 30, wherein said transmitter includes said phase signals in said frames such that the order of the phase signals is the same in each respective superframe.

34. A system for determining the power level of a communication signal comprising a plurality of time slots, the system comprising:

a power measuring circuit adapted to measure the power of the communication signal in substantially continuous discrete time periods, each time period being less than the duration of one of said time slots, and

a gain setting device adapted to set the gain of an automatic gain control circuit based on the maximum power in any time period, and to apply said gain to said communication signal.

35. The system of claim 34, wherein each of said time periods is no more than half of the duration of one of said time slots.

36. A system for acquiring a signal being transmitted within a range of possible frequencies at a terminal adapted for use in a satellite communication system, the system comprising:

a receiver adapted to receive said signal at said terminal, said signal comprising a plurality of frames, a portion each frame comprising a unique word pattern; and

a testing device adapted to test at least one of a plurality of possible frequencies within said range for the duration of at least one frame for the presence of the unique word pattern and for repeating said test at additional respective possible frequencies until said unique word pattern is detected.

37. The system of claim 36 wherein the testing device is adapted to determine a correlation value for the tested frequency, and the unique word pattern is detected when the correlation value is above a threshold value.

38. The system of claim 36, wherein said testing device is further adapted to determine a correlation value for each of said plurality of possible frequencies, and to identify a maximum correlation value from the plurality of correlation values.

39. The system of claim 38 wherein said testing device is further adapted to set transmission frequency based on the frequency associated with said maximum correlation value.

40. A system for providing a synchronization signal to a terminal adapted for use in a satellite communication system, the system comprising:

a transmitter adapted to generate said synchronization signal as a plurality of unique phase signals and to transmit said synchronization signal to said terminal, said synchronization signal comprising a plurality of frames, a portion of each frame comprising a unique one of said plurality of unique phase signals.

41. The system of claim 40, wherein the synchronization signal comprises a plurality of superframes, each superframe comprising a plurality of said frames, such that the order of unique phase signals in each frame repeats in each superframe.

42. The system of claim 41 wherein the number of frames per superframe is equal to the number of unique phase signals.

43. The system of claim 41, wherein the beginning of each superframe coincides with the beginning of one of the frames.

44. A system for determining the phase of a satellite communications signal comprising a plurality of frames, and having a series of unique phase signals time division multiplexed into at least one time slot of each respective frame, a plurality of frames forming a superframe such that the unique phase signals repeat in each superframe, the system comprising:

a correlation device adapted to correlate the phase signal portion of each frame with a reference phase signal;

generate a correlation value for each frame; and

determine the start of the superframe based on the frame generating the highest correlation value.

45. The system of claim 44, wherein the unique phase signals comprise pseudonoise sequences.

46. The system of claim 44, wherein the reference phase signal comprises a pseudonoise sequence substantially identical to one of the series of unique phase signals.

47. The system of claim 46, wherein the reference phase signal is substantially identical to the first unique phase signal in each superframe.

48. A system for acquiring a communication signal, the communication signal comprising a plurality of frames, each frame comprising a plurality of time slots, at least one time slot in each frame having synchronization data with a unique word signal contained therein, the system comprising:

a correlator adapted to correlate at least one frame of said communication signal with a locally generated unique word signal at at least one of a plurality of possible frequencies, to store a correlation value for each of said possible frequencies, and to set a numerically controlled oscillator (NCO) frequency based on a desired correlation value of said possible frequencies;

a gain setting device adapted to set the gain of an automatic gain control circuit (AGC) based on the maximum power measured in each frame in predetermined time intervals each being less than the duration of one time slot, to apply said gain to said communication signal, and to continue setting the gain of the AGC until said correlator generates a correlation value above a frequency acquisition threshold;

a voltage controlled oscillator (VCO) frequency offset reducer adapted to:

(a) determine an arrival time of the unique word signal in a first frame;

(b) estimate an estimated arrival time of the unique word signal in a second frame based on the arrival time of the unique word signal in said first frame;

(c) determine the actual arrival time of the unique word signal in said second frame;

(d) calculate a difference between the estimated arrival time and the actual arrival time;

(e) adjust a VCO frequency based on said difference, and

(f) repeat functions (a)-(e) on subsequent frames if said difference is not below a timing acquisition threshold value; and

a mode selection circuit for causing the system to enter a tracking mode if said difference is below said timing acquisition threshold value.

49. The system of claim 48, wherein said predetermined time interval is no more than half of the duration of one time slot.

50. The system of claim 48, wherein said correlator correlates at least one frame with a locally generated unique word signal at each of said plurality of possible frequencies.

51. The system of claim 48, wherein the correlator sets the NCO frequency based on the maximum correlation value of said possible frequencies.